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**APPLICATION FOR LETTERS PATENT
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WATERFALL HANDLE

of which the following is a specification.

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WATERFALL HANDLE

BACKGROUND OF THE INVENTION

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1. Technical Field.

The present invention generally is in the field of devices for generating waterfalls, and more particularly is in the field of devices for generating aesthetically pleasing waterfalls in spas, swimming pools, tubs and the like. The present invention also relates to the field of decorating and improving the aesthetics of spas, swimming pools, tubs, and the like. The present invention further relates to the field of handles or devices for aiding users entering and exiting and moving around spas, swimming pools, tubs, and the like.

15 2. Prior Art.

Few applications derive more benefit from the addition of waterfalls or fountains than artificial bodies of water such as spas, swimming pools, tubs, or the like. The popularity of waterfalls and fountains in such structures is probably associated with the numerous aesthetic and practical applications that make waterfalls desirable. More specifically, the addition of a waterfall or fountain to an artificial body of water can provide a substantial decorative effect or can provide a relaxing background sound, generated from the water flow, particularly heard when the pool is not in use. As such, users and owners of artificial bodies of water have always desired the addition of waterfalls or fountain.

Existing waterfall devices are generally custom-made for each particular artificial body of water. That is, such devices must be sized and configured to fit a specific water structure. Often, these waterfall devices must be integrated into the circulation and filtration system with additional materials and involve an array of plumbing and molding techniques. In some cases, such waterfall devices must have an independent filtering system and cleaning system so that waterfall device does not become plugged with debris. As such, prior art waterfall devices tend to be relatively costly and difficult to install.

Accordingly, there is a need for a device that allows for the addition of a waterfall to an artificial body of water, such as a spa, swimming pool, tub or the like. There is also need for such a device to be able to be integrated into a spa, swimming pool, tub or the like without excessively disrupting or interfering with the existing filtering system. There is a further need for a combined device serving multiple purposes such as an aesthetically pleasing ornamental addition to, a means for filling with water, and/or a means for entering, exiting or moving around a spa, swimming pool, tub or the like. It is to these needs and others that the present invention is directed.

BRIEF SUMMARY OF THE INVENTION

Briefly described, the present invention is a device that produces a waterfall into, is a means for filling with water, and/or is a means for entering, exiting or moving around a spa, swimming pool, tub or the like. For simplicity, spas, swimming pools, tubs or the like, and all such artificial bodies of water, together or separately will be referred to as spas or a spa. The invention can be mounted appropriately on the edge of a spa and in one embodiment, the present invention is a waterfall handle that can be installed on the edge of a spa to provide for the addition of an aesthetically pleasing and decorative waterfall that flows into a spa and to provide a convenient handle for persons entering and exiting the spa. In this embodiment, water from a water source flows into the waterfall handle and is discharged through a waterfall slot into the spa. As the waterfall handle can be placed above the surface of the water in the spa on, for example, the upper edge of the spa wall, the waterfall can be a smooth flow of falling water extending from the waterfall handle to the surface of the water in the spa.

The waterfall handle of the present invention comprises an elongated member with a waterfall slot that is flanked by a first end piece and a second end piece. The elongated member has ends that cooperate with and secure the elongated member within accepting ends of the first end piece and a second end piece. When assembled, that is when the first end piece and the second end piece are connected to the elongated member, waterfall handle appears as a generally continuous shaped structure with the waterfall slot in the center of the

waterfall handle. One or both of the first end piece and the second end piece comprises a channel through which water flows from a water source to the elongated member.

5 In one embodiment, the elongated member comprises a first chamber and a second chamber separated by a divider. The divider has a distributing slot for allowing the passage of water between the first chamber and the second chamber. The first chamber is structured and intended for evenly distributing the water entering the elongated member within the first chamber and the second chamber is structured for channeling the water through the waterfall slot.

10 Preferably, the divider divides the elongated member such that only the first chamber has direct access to the waterfall slot. The divider can be a single slot or a series of smaller slots or holes running approximately the length of the elongated member.

The flow of water through the waterfall handle occurs through regular fluid dynamics. Water from a water source such as a municipal water supply flows

15 through a channel within and through one of the end pieces, into the elongated member, and out through the waterfall slot into the spa. More particularly, the water from the water source enters and flows through the first end piece into the elongated member. Within the elongated member, the water flows into the first chamber and is distributed more evenly within the first chamber. The water flows

20 through the slot, slots or holed in the divider into the second chamber and ultimately through the waterfall slot into the spa.

The waterfall handle can be anchored to the wall or edge of a spa using the first and second end pieces. More particularly, the first and second end pieces

25 are structured to have securing ends for securing the elongated member between the first and second end pieces and attaching ends for attaching to the spa wall. Thus, when the first and second end pieces are securely connected to the spa wall, as the end pieces are connected to the elongated member, the elongated member and the entire device thereby is secured to the spa wall. One or both, but

30 preferably only one, of the end pieces also is connected to a water source. In one embodiment, the first end piece is anchored to the spa wall and is connected to a water supply and the second end piece is anchored to the wall.

In operation and use, the present invention provides an aesthetically pleasant waterfall into a spa, a means for filling the spa with water, and a convenient handle for users of the spa to enter or exit or move around in the spa. One advantage of the waterfall handle is that it can serve multiple functions and therefore take the place of two or more prior devices. For example, the waterfall handle can serve as a handle to allow a person in the spa to grip thus replacing known handles, as an aesthetically pleasing waterfall thus replacing known waterfalls, and/or as a means for filling the spa thus replacing known spouts and taps. Thus, the present invention can economically serve two or more needs.

Another advantage of the waterfall handle is that the direction of the waterfall can be adjusted with respect to the surface of the water in the spa. In one embodiment, the elongated member can be rotated within the first and second end pieces. As the elongated member comprises the waterfall slot, a user can rotate the elongated member to control the direction of flow of water therefrom. For example, if a user wants the waterfall to flow directly downward, the user can rotate the elongated member so that the flow of water from the waterfall slot can flow directly downward. For another example, if the user wants the waterfall to flow in the forward direction, the user can rotate the elongated member so that the waterfall slot faces forward (or horizontally) and so the flow of water from the waterfall slot is forward (and then of course downwards due to gravity). Thus, the ability of the elongated member to be rotated provides a user with the ability to control aspects of the waterfall produced by the waterfall handle.

The waterfall device can be used on almost any artificial water body. While the waterfall handle is described in connection with a spa, it is understood that the waterfall handle can be used on spas, swimming pools, tubs, and the like. For example, the waterfall handle can be placed on the edge of a swimming pool so to provide a waterfall and a handle on the swimming pool. One of ordinary skill in the art can modify the waterfall handle without undue experimentation so that it can be placed on almost any artificial water body.

These features, and other features and advantages of the present invention will become more apparent to those of ordinary skill in the relevant art when the following detailed description of the preferred embodiments is read in conjunction

with the appended drawings in which like reference numerals represent like components throughout the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

5 FIG. 1 is a perspective view of one embodiment of the present invention attached to a spa wall and producing a waterfall.

 FIG. 2 is an exploded view of the embodiment shown in FIG. 1 showing the components of the device.

 FIG. 3 is a sectional side view of the elongated member of the invention.

10 FIGs. 4A is a first end view of the elongated member of the embodiment shown in FIG. 3.

 FIGs. 4B is a second end view of the elongated member of the embodiment shown in FIG. 3.

 FIG. 5 is a side view of an end piece of the invention.

15 FIG. 6 is a top view of the embodiment shown in FIG. 1 showing the general flow of water through the invention.

 FIG. 7 is a sectional side view of the elongated member of the embodiment shown in FIG. 3 showing the flow of water through the chambers.

20 FIG. 8 is a sectional end view of the elongated member of the embodiment shown in FIG. 3 showing the flow of water through the chambers.

 FIG. 9 is a perspective view of the embodiment shown in FIG. 1 as placed on a typical spa.

 FIG. 10A is a top view of a second embodiment of the invention.

 FIG. 10B is a top view of a third embodiment of the invention.

25 FIG. 10C is a side view of a fourth embodiment of the invention.

PREFERRED EMBODIMENTS OF THE PRESENT INVENTION

30 Illustrative embodiments of a waterfall handle 10 according to the present invention are shown in FIGs. 1 through 10. FIG. 1 is a perspective view of one embodiment of the present invention for producing a waterfall into the water of a spa and for acting as a handle for ease of entering, exiting or moving about the spa. FIG. 2 is an exploded view of the three major components of the

embodiment of the invention shown in FIG. 1. FIG. 3 is a sectional side view of the elongated member of the invention with ghost lines showing some of the internal features and the dual chambers of the elongated member. FIGs. 4A and 4B are end views of the elongated member, with FIG. 4A showing a port allowing water to flow into the elongated member and FIG. 4B showing a solid end wall. FIG. 5 is a side view of an end piece of the invention with ghost lines showing a conduit through which water flows.

FIG. 6 is a top view of the embodiment of the invention shown in FIG. 1 with ghost lines showing the general internal structure of the components of the invention, the general flow of water through the device, and how the device is attached to a spa wall. FIG. 7 is a sectional side view of the elongated member of the invention showing the flow of water through the chambers. FIG. 8 is a sectional end view of the elongated member of the invention showing the flow of water in the elongated member. FIG. 9 is a perspective view of the invention as placed on a typical spa.

FIG. 10A is a top view of a second embodiment of the present invention comprising a single component. FIG. 10B is a top view of a third embodiment of the present invention comprising two components. FIG. 10C is a side view of a fourth embodiment of the present invention comprising four components. These additional embodiments are included to illustrate the versatility of the invention and the variety of manners in which it can be manufactured and assembled.

Referring now to FIG. 1, one illustrative embodiment of the present invention is a waterfall handle 10 that can provide both an aesthetically pleasing and decorative waterfall 20 into a spa 22 and a convenient handle within spa 22. In this embodiment, waterfall handle 10 can be installed on sidewall 24 of spa 22. As disclosed in more detail herein, to generate the waterfall, water from a water source (not shown) flows into waterfall handle 10 and is discharged through waterfall slot 40 into spa 22. As waterfall handle 10 can be placed above the surface of the water of spa 22 on, for example, the upper edge of sidewall 24 of spa 22, the waterfall handle 10 can be gripped by a typical user of spa 22. As such, this embodiment can serve at least two functions. A third function is to fill spa 22 with water.

Referring now to FIG 2, an illustrative embodiment of waterfall handle 10 comprises three components, namely, elongated member 12, which comprises waterfall slot 40, flanked by first end piece 30 and second end piece 32.

Elongated member 12 is a generally hollow and generally cylindrical structure having a central portion 102 of a first diameter and cooperating ends 14, 16 of a second smaller diameter. More specifically, cooperating ends 14, 16 are structured for securing elongated member 12 within accepting ends 36, 38 of first end piece 30 and second end piece 32, respectively, such that when elongated member 12 and end pieces 30, 32 are assembled a generally smooth outer surface is presented. Thus, when assembled, that is when first end piece 30 and second end piece 32 are connected to elongated member 12 at the accepting ends 36, 38, waterfall handle 10 appears as a generally continuous shaped structure. Waterfall slot 40 is located lengthwise along central portion 102 and provides an exit for water to flow from the hollow interior of elongated member 12. This illustrative three-component configuration is for ease of manufacturing and installation, and as shown in FIG. 10 configurations having more or fewer components are within the scope and spirit of this invention.

Referring now to FIGs. 3 and 8 the internal and external structure of elongated member 12 is shown in more detail. Elongated member 12 is divided into first chamber 18 and second chamber 19 by divider 42. Each chamber preferably runs the length of elongated member 12 between cooperating ends 14, 16 and consists of approximately half of the internal volume of elongated member 12. First chamber 18 is for initially receiving water from the water source and evenly distributing water within elongated member 12. Second chamber 19 is for receiving water from first chamber 18 and channeling water through waterfall slot 40. Divider 42 has at least one distributing slot 44 for allowing the passage of water between first chamber 18 and second chamber 19. As shown, divider 42 divides elongated member 12 such that only second chamber 19 has access to waterfall slot 40. Thus, as disclosed in more detail herein, water flowing into elongated member 12 first flows into first chamber 18 within which water is generally evenly distributed, then flows through distributing slot 44 into second chamber 19, and then exits through waterfall slot 40 to form waterfall 20.

As shown in FIG. 3, cooperating ends 14, 16 have a diameter less than elongated member. Typically, the reduction in diameter is equal to the thickness of the external wall 104 of elongated member 12. Further, as disclosed in connection with FIG. 5 herein, the outside diameter of cooperating ends 14, 16 is approximately equal to the inside diameter of accepting ends 36, 38 of end pieces 30, 32. Although elongated member 12 is shown as a cylinder for this illustrative example, elongated member 12 can have any cross-sectional shape, such as circular, oval, ellipsoidal, square, triangular and any other geometric shape selected for aesthetic and other purposes. Further, elongated member 12 can be manufactured in various lengths depending on the size of handle needed or desired, or the size of waterfall 40 desired.

Referring now to FIGs. 4A and 4B, the ends of elongated member 12 are shown in more detail. In the present illustrative embodiment, first cooperating end 14 is distinct from second cooperating end 16. More particularly, as shown in FIG. 4A first cooperating end 14 is partially blocked off by first wall 13, while as shown in FIG. 4B second cooperating end 16 is entirely blocked off by second wall 15. Aperture 48 provides access to the interior of first chamber 18. The configuration of first cooperating end 14 allows water to flow from first end piece 30 through aperture 48 into first chamber 18 but not from first end piece into second chamber 19 or from second chamber 19 into first end piece 30. The configuration of second cooperating end 16 prevents water from exiting elongated member 12 through second cooperating end 16. Thus, water is introduced into elongated member 12 only through a single end piece, namely, first end piece 30 in this example.

Alternatively, as disclosed in more detail below, as second end piece 32 generally is a mirror image of first end piece 30, second end piece 32 can be used to introduce water to elongated member 12 if elongated member is rotated 180° normal to its axis such that first cooperating end 14 cooperates with second end piece 32. Additionally, both cooperating ends 30, 32 can have the configuration shown in FIG. 4A and water can be introduced into first chamber 18 from both end pieces 30, 32.

Referring now to FIG. 5, an illustrative embodiment of end pieces 30, 32 is shown in more detail, with first end piece 30 being used as the example. First end piece 30 is a generally hollow curved or elbow-shaped conduit comprising channel 34 through which water can flow. Channel 34 cooperates with aperture 48 in elongated member 12 to facilitate the flow of water from the water source, through first end piece 30 into first chamber 18 of elongated member 12. One end of first end piece 30 is accepting end 36, which cooperates with first cooperating end 14 of elongated member 12. Preferably, cooperating end 14 fits snugly within accepting end 36. Another end of first end piece opposite accepting end 36 comprises attachment means 110. As shown, attachment means is a threaded connecting tube 112 that fits through a cooperating and similarly sized hole in the spa sidewall 24. Nut 114 screws onto threaded connecting tube 112 so as to hold first end piece 30 securely and tightly onto spa sidewall 24. A hose or other water supply means (not shown) also can be attached to threaded connecting tube 112 for providing water to the device 10.

Second end piece 32 generally is a mirror image of first end piece 30. Thus, second cooperating end 16 fits snugly within accepting end 38. Second end piece 32 also comprises attachment means 110 for securing second end piece 32 to spa sidewall 24. However, if water is being provided to the device 10 through first end piece 30, there is no need to attach a hose or other water supply means (not shown) to threaded connecting tube 112 of second end piece 32. However, in a configuration in which both cooperating ends 14, 16 comprise aperture 48, either channel 34 through second end piece 32 should be blocked to prevent water from exiting elongated member 12 through second end piece, or a second hose or other water supply means (not shown) should be attached to threaded connecting tube 112 of second end piece 32.

Referring now to FIGs. 6 and 7, the assembled device 10 is shown in more detail. First end piece 30 is attached to spa sidewall 24 through a pre-existing hole in spa sidewall 24 using attachment means 110. First cooperating end 14 of elongated member 12 is inserted into attachment end 36. Attachment end 38 of second end piece 32 is placed over second cooperating end 16 of elongated member 12. Second end piece 32 then is attached to spa sidewall 24 through a

pre-existing hole in spa sidewall 24 using attachment means 110. Of course, this order can be reversed and second end piece 32 can be attached to spa sidewall 24 first.

Water (as shown by arrows W) flows from water source (not shown) through channel 34 of first end piece 30 into first chamber 18 of elongated member 12 parallel to its axis A. Distributing slot 44 along chamber divider 42 allows for a more smooth and even distribution of water within elongated member 12 in general and into second chamber 19 in specific, and thus to waterfall slot 40. Because of the nature of water flow, second chamber 19 will readily fill with water. To help evenly distribute water, a series of perforations can be used on divider 42 rather than a single distributing slot 44. By allowing for the even distribution of water from first chamber 18 to second chamber 19, waterfall handle 10 can distribute water through waterfall slot 40 more effectively. As such, it is possible to generate a more even flow to second chamber 19 and thus a more even waterfall 20 from waterfall device 10.

Referring now to FIG. 9, waterfall handle 10 attaches on the sidewall 24 of a typical spa 22. Waterfall handle 10 can be placed on spa 22 so that first end piece 30 is secured to spa 22 and connected to a water source and second end piece 32 is secured to spa 22, so that second end piece 32 is secured to spa 22 and connected to a water source and first end piece 30 is secured to spa 22, or that both end pieces 30, 32 are secured to spa and connected to a water source, depending on the selected configuration. Preferably, waterfall handle 10 is anchored on spa 22 so that it can withstand an amount of force placed thereupon by a person. One of ordinary skill in the art can construct ways of installing waterfall handle 10 on spa 22 so to obtain a desired stability.

Referring now to FIG. 10, additional embodiments of the device 10 are shown. For example, FIG. 10A illustrates that a single component configuration 200 can be molded out of plastic having a central elongated portion 202 and two end portions 204, 206 having generally the same configuration as the three-component configuration shown when assembled. For another example, FIG. 10B illustrates that a two-component configuration 220 can be manufactured having a first section 222 comprising an elongated portion 224 and an end piece

226 for attaching to a spa sidewall although a three-component configuration is shown. For another example, FIG. 10C illustrates that a four-component configuration 260 can be manufactured having a central elongated portion 262 and two end portions 264, 266, in which the central elongated portion 262 is split
5 into two separate portions corresponding to the first chamber portion 268 and the second chamber portion 280, which, when assembled, has generally the same configuration as the three-component configuration shown.

In operation and use, waterfall handle 10 provides an aesthetically pleasant waterfall 20 into a spa 22 and provides a convenient handle for users of the spa
10 22 to use while entering, exiting or moving around in the spa 22. As waterfall handle 10 preferably is located above the water surface of spa 22 on, for example, sidewall 24 of spa 22, waterfall 20 can provide a smooth flow of falling water extending from waterfall handle 10 to the water surface of spa 22.

One advantage of the waterfall handle is that it can serve as a both a
15 handle and as a waterfall. More particularly, the waterfall handle serves as a handle to allows a person in the spa to grip and waterfall handle serves to provide an aesthetically pleasing waterfall. As the same time, the waterfall handle can be placed to allow for a person to enjoy the handle and to enjoy the waterfall produced therefrom. Thus, such the present invention can serve at least two
20 needs.

For aesthetic reasons waterfall 20 can be substantially smooth over its width and over its length as it flows into the water of spa 22. More particularly, waterfall 20 from waterfall handle 10 preferably is free of bubbles and ripples and flows as a generally continuous sheet of water. The dual chambered structure of
25 the invention 10 helps accomplish this.

Elongated member 12 can be rotatable between end pieces 30, 32. The rotatability of the elongated member 12 within end pieces 30, 32 allows a user to control the relative direction of waterfall 20. For example, if the user desires that waterfall 20 flow directly downward, the user can rotate elongated member 12 so
30 that water flows from waterfall slot 40 directly downward. Alternatively, if the user desires that the waterfall 20 flow forward, the user can rotate elongated member

12 so that waterfall slot 40 faces foreword, and thus water flows in a forward-downward fashion.

Preferably, connections between waterfall member 12 and end pieces 30, 32 are as watertight as possible. If the connection between end pieces 30, 32 and elongated member 12 are not watertight, water may escape through the connections. In some cases, it may be optimal to use fillers, sealants, o-rings or the equivalent to help ensure watertight connection between the parts of waterfall handle 10. Methods for ensuring a watertight connection between parts or plumbing parts are known by one of ordinary skill in the art.

The waterfall handle 10 can be used on almost any artificial water body. While waterfall handle 10 is described in connection with a spa 22, it is understood that waterfall handle 10 could be used on spas, swimming pools, tubs, and the like. For example, waterfall handle 10 can be placed on the edge of a swimming pool so to provide a waterfall and a handle on the swimming pool. One of ordinary skill in the art can modify waterfall device 10 so that it can be placed on any artificial water body.

It is understood that shape of waterfall 20 can be modified by the configuration of waterfall slot 40. For example, if waterfall slot 40 is a regular uninterrupted slit, a relatively smooth waterfall 20 over its length and width can be generated. Alternatively, if divisions or interruptions are introduced into the waterfall slot 40, or waterfall slot 40 has a non-linear shape, waterfall 20 can have a sprinkler type shape or a scalloped shape, which is not a smooth shaped waterfall. One of ordinary skill in the art can modify waterfall slot 40 so that waterfall handle 10 will produce a waterfall 20 of a desired shape.

Waterfall handle 10 can be manufactured from relatively inexpensive materials. For example, waterfall handle 10 can be formed of plastics, metal, or other materials. Preferably, waterfall handle 10 can be molded or forged from a plastic material as such material will not rust from the exposure to water, particularly chlorinated water. Such plastics, metals, and other materials are known in the art.

The foregoing detailed description of the preferred embodiments and the appended figures have been presented only for illustrative and descriptive

purposes and are not intended to be exhaustive or to limit the scope and spirit of the invention. The embodiments were selected and described to best explain the principles of the invention and its practical applications. One of ordinary skill in the art will recognize that many variations can be made to the invention disclosed
5 in this specification without departing from the scope and spirit of the invention.